

REMARKS

Claims 1, 5, 10-12 and 18 stand rejected under 35 U.S.C. 102(b) as being anticipated by Ito (U.S. Patent No. 6,108,856); claims 3, 8-9, 13 and 17 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Kimura et al. (U.S. Patent Publication No. 2003/0143994); claims 2 and 6 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Hunzinger (U.S. Patent Publication No. 2002/0025822); and claims 4, 14-15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ito in view of Kimura et al. and further in view of Hunzinger.

The Examiner has indicated that claims 7 and 16 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims.

Independent claims 1 and 13 have been amended herein to include the recitations of cancelled claim 5. All of the remaining claims are dependent directly or ultimately from amended claims 1 or 13. For the reasons set forth hereinafter, it is submitted that the claims as amended herein are not anticipated or rendered obvious by the teachings of the cited references, taken individually or in combination.

It is noted that the purpose of Ito is to more accurately estimate the location of the terminal. In contrast, the purpose of the present invention is to update the database which stores the position information. In Ito, the directional antenna, in which a signal received from a specific direction has a large gain and another signal received from another direction has a small gain, is disclosed. According to Ito, only the signal received from the specific direction can be selectively received, so that the signal transmitted from the terminal is received from the specific direction where gain of the

directional antenna is large. Consequently, there is a technical feature that an accurate estimate for the location of the terminal is possible since it can be understood the terminal exists in the specific direction.

In the method of the present invention, as recited in all of the amended claims herein, the first position information is updated based on a second position information measured according to a predetermined second position determination method. It is possible that position information can be inaccurate due to changes of city environments and changes of traffic volumes after the first position information is generated. Therefore, the first base station signal information is updated by reflecting such changes of city environments and traffic volume, thereby constantly storing up-to-date position information in the database. Consequently, a novel technical feature of the present invention is that the position of the terminal can be measured by reflecting changes of environments.

More specifically, amended claim 1 and all of the claims depending therefrom now recite the steps of storing and maintaining the collected first base station signal information in association with a first position information of the grids in a database, determining a second position information by a predetermined second position determination method, measuring a second base station signal information received by a first mobile communication device with respect to the second position information, updating the first base station signal information stored in a database based on the measured second base station signal information, measuring a third base station signal information received by a second mobile communication device, comparing the third base station signal information with the first base station signal information to find first

position information corresponding to the first base station signal information in the database, and generating final position information of the second mobile communication device based on the first position information found in the database.

Similarly, amended claim 13 and all of the claims depending therefrom now recite the steps of determining a second identification information by a predetermined second position determination method, measuring a second base station signal information received by a first mobile communication device with respect to the second identification information, updating the first base station information stored in the pattern matching database based on the measured second base station signal information, measuring a third base station signal information received by a second mobile communication device, searching the pattern matching database by the third base station signal information to find a base station set similar to the third base station signal information, and determining a position of a building corresponding to the found base station set as the position of the building to which the second mobile communication device belongs in the case the property of the third base station signal information is corresponding to a predetermined property range of the found base station set.

These novel method recitations found in claims 1 and 13 and all of the dependent claims are not disclosed or even suggested by the teachings of the cited references.

With respect to the rejection of claim 5, the Examiner alleges that Ito teaches the method steps therein at Fig. 6 and column 10, lines 22-49. It is noted, however, that his portion of the Ito disclosure describes a third embodiment relating to a mobile station locating method which utilizes a directional antenna to increase the accuracy in the

locating of the mobile station. More specifically, the accuracy in the position identification can be improved by processing the information involved in a confirmation signal "e" sent from the mobile station together with the azimuth information and θ_1 of the directional antenna. As a result, it becomes possible to reduce the number of base stations transmitting the base stations characteristic signals to the mobile station for the locating of the mobile station. This disclosure of Ito clearly does not describe or even suggest Applicants' novel method recited in all of the amended claims comprising the steps of determining second position information by a predetermined second position determination method, measuring third base station signal information received by a second mobile communication device with respect to the second position information, and updating the first base station signal information stored in the database based on the measured third base station signal information. It is apparent, therefore, that the teachings of Ito fail to anticipate or render obvious the novel recitations in the claims as amended herein.

The Kimura et al. reference was cited by the Examiner for its teachings of determining a building location and a predetermined property range of a base station set including pseudo-random noise phase delay range and a pseudo-random noise strength range. Other than these disclosures, Kimura et al. fails to supply the deficiencies of Ito with respect to the novel recitations in the amended claims in the present application.

The Hunziger reference was cited by the Examiner for its teaching of GPS for the purpose of determining position information. Other than this limited disclosure,

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Hunziger fails to supply the deficiencies of Ito with respect to the novel recitations in the amended claims in the present application.

In view of the above amendments and remarks, it is submitted that all of the amended claims in the present application are allowable to Applicants, and formal allowance thereof is earnestly solicited.

Respectfully submitted,

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